

STATE OF TENNESSEE **DEPARTMENT OF HEALTH ENVIRONMENTAL LABORATORIES**

TDH: Lab Services JRL Lab Services - Jackson Regional Lab Jackson, TN 38301 731-426-0686

TDH: Lab Services KRL Lab Services - Knoxville Regional Lab Knoxville, TN 37920 865-549-5201

TDH: Lab Services NCL Lab Services - Nashville Central Lab Nashville, TN 37243 615-262-6300

Sent To:

Greg Denton

TDEC-WPC

6th Floor, L & C Tower Annex

401 Church Street

Nashville, TN 37243-1534

Michael Atchley TDEC-WPC

Knoxville FO

3711 Middlebrook Pike

Knoxville, TN 37921

Lab ID: K00003194

Knoxville Regional Laboratory

Sampling Agency: TDEC: Division of Water Pollution Control

Billing Code:

327.34-20

This is to certify that the following results were determined using good laboratory pratices and in accordance with federal or state approved methodologies.

Analytical Supervisor

Page 1 of 21

Lab-Sample Number: **Project Name:**

K00003194001 TVA-Ash Spill

Sample Description:

Emory River mile 12.1

Sampler Project Name: TVA ash spill

Project Site No.:

Station No.: Date/Time Collected: EMORY012.1RO 12/08/2009 11:36

Sampler's Name: County:

Geoff Klein **ROANE - 73**

Sample Matrix: EFO:

Water Knoxville

Sampling Agency: **Billing Code:** Send Report To: **Agency Invoiced:**

TDEC-WPC 327.34-20 TDEC-WPC TDEC-WPC 12/18/2009

Priority Date: Date/Time Received:

12/08/2009 12:51

Received By:

Ken Hitchman

Field Determinations

pH: 7.60

Chlorine, residual:

Conductivity:

38

uMHO

pH Units

Temperature:

6.13 **Dissolved Oxygen: 15.10**

mg/L

Other:

Flow: **CFS**

TEST: Digestion Metals	METHOD: EPA 200.2					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	12/09/2009				M Pattanayek	12/9/2009

TEST: ICP	METHOD: EPA 200.7					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Iron	170	μg/L	2.9	10	A Wilson	12/10/2009

TEST: ICP-MS	ME	THOD: EPA 20	0.8			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Aluminum	57	μg/L	6.4	10	M Pattanayek	12/9/2009
Antimony	, U	μg/L	0.33	1	M Pattanayek	12/9/2009
Arsenic	U	μg/L	0.93	5	M Pattanayek	12/9/2009
Barium	19	μg/L.	2.5	- 5	M Pattanayek	12/9/2009
Beryllium	U	μg/L	0.11	1	M Pattanayek	12/9/2009
Cadmium	U	μg/L	0.41	1	M Pattanayek	12/9/2009
Chromium	U	μg/L	2.0	5	M Pattanayek	12/9/2009
Cobalt	0.20J	μg/L	0.04	1	M Pattanayek	12/9/2009
Copper	· U	μg/L	0.38	1	M Pattanayek	12/9/2009
Lead	U	μg/L	0.10	1 -	M Pattanayek	12/9/2009
Manganese	45	μg/L	0.42	1	M Pattanayek	12/9/2009
Nickel	U	μg/L	0.25	1	M Pattanayek	12/9/2009
Selenium	U	μg/L	1.3	5	M Pattanayek	12/9/2009
Silver	U	μg/L	0.03	0.25	M Pattanayek	12/9/2009
Thallium	0.060J	μg/L	0.03	1	M Pattanayek	12/9/2009
Vanadium	U	μg/L	3.4	5	M Pattanayek	12/9/2009
Zinc	3.7J	μg/L	1.9	5	M Pattanayek	12/9/2009

K00003194001

Project Name:

TVA-Ash Spill

Sample Description:

Emory River mile 12.1

Sampler Project Name: TVA ash spill

Project Site No.:

Station No.:

EMORY012.1RO

Date/Time Collected:

12/08/2009 11:36

Sampler's Name: County:

Geoff Klein

Sample Matrix:

ROANE - 73

EFO:

Water

Sampling Agency: **Billing Code:**

Knoxville TDEC-WPC 327.34-20

Send Report To: Agency Invoiced:

TDEC-WPC TDEC-WPC 12/18/2009

Priority Date: Date/Time Received:

12/08/2009 12:51

Received By:

TEST: Mercury

Ken Hitchman

METHOD: EPA 245.1

MDL MQL ANALYZED BY: RESULT UNITS DATE **ANALYTE** U μg/L 0.029 0.2 Mercury M Pattanayek 12/15/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

U - Undetected

pH:

7.60

pH Units

Chlorine, residual:

Conductivity:

38

uMHO

Temperature:

6.13 Dissolved Oxygen: 15.10

mg/L

Other:

Flow:

CFS

K00003194002 TVA-Ash Spill

Project Name: Sample Description:

Emory River mile 2.1

Sampler Project Name: TVA ash spill

Project Site No.:

Station No.: Date/Time Collected: EMORY002.1RO 12/08/2009 09:58

Sampler's Name:

Geoff Klein

County: Sample Matrix:

ROANE - 73

EFO:

Water

Sampling Agency: **Billing Code:**

Knoxville TDEC-WPC 327.34-20

Send Report To: Agency Invoiced: **TDEC-WPC** TDEC-WPC 12/18/2009

Date/Time Received:

12/08/2009 12:51

Received By:

Priority Date:

Ken Hitchman

Field Determinations pH: 7.92

Chlorine, residual:

Conductivity:

44 uMHO

pH Units

mg/L

Temperature: 6.89

Dissolved Oxygen: 16.18

Other:

Flow: **CFS**

TEST: Digestion Metals						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	12/09/2009				M Pattanayek	12/9/2009

TEST: ICP	METHOD: EPA 200.7						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Iron	340	μg/L	2.9	10	A Wilson	12/10/2009	

TEST: ICP-MS	ME.	THOD: EPA 20	0.8		•	
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Aluminum	210	μg/L	6.4	10	M Pattanayek	12/9/2009
Antimony	U	μg/L	0.33	1	M Pattanayek	12/9/2009
Arsenic	U	μg/L	0.93	5	M Pattanayek	12/9/2009
Barium	25	μg/L	2.5	5	M Pattanayek	12/9/2009
Beryllium	U	μg/L	0.11	1	M Pattanayek	12/9/2009
Cadmium	. U	μg/L	0.41	1	M Pattanayek	12/9/2009
Chromium	U	μg/L	2.0	5	M Pattanayek	12/9/2009
Cobalt	0.25J	μg/L	0.04	1	M Pattanayek	12/9/2009
Copper	U	μg/L	0.38	1	M Pattanayek	12/9/2009
Lead	0.29J	μg/L	0.10	1	M Pattanayek	12/9/2009
Manganese	42	μg/L	0.42	1	M Pattanayek	12/9/2009
Nickel	0.93J	μg/L	0.25	1	M Pattanayek	12/9/2009
Selenium	U	μg/L	1.3	5	M Pattanayek	12/9/2009
Silver	U	μg/L	0.03	0.25	M Pattanayek	12/9/2009
Thallium	0.040J	μg/L	0.03	1	M Pattanayek	12/9/2009
Vanadium	U	μg/L	3.4	5	M Pattanayek	12/9/2009
Zinc	1.9J	μg/L	1.9	- 5	M Pattanayek	12/9/2009

K00003194002

Project Name:

TVA-Ash Spill

Sample Description:

Emory River mile 2.1

Sampler Project Name: TVA ash spill **Project Site No.:**

Station No.:

EMORY002.1RO

Date/Time Collected: Sampler's Name:

12/08/2009 09:58

County:

Geoff Klein **ROANE - 73**

Sample Matrix:

Water.

EFO:

Knoxville

Sampling Agency: **Billing Code:** Send Report To:

TDEC-WPC 327.34-20 TDEC-WPC

Agency Invoiced: Priority Date:

TDEC-WPC 12/18/2009

Date/Time Received:

12/08/2009 12:51

Received By:

Ken Hitchman

Field Determinations

pH: 7.92

pH Units

Chlorine, residual:

Conductivity:

44

uMHO

Temperature: 6.89 **Dissolved Oxygen: 16.18**

Other:

Flow:

mg/L **CFS**

TEST: Mercury	ME	THOD: EPA 24	5.1	7.00		
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	µg/L	0.029	0.2	M Pattanayek	12/15/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

K00003194003

Project Name:

TVA-Ash Spill

Sample Description:

Date/Time Collected:

Emory River mile 1.9 at underwater weir

Sampler Project Name: TVA ash spill **Project Site No.:**

2B

Station No.:

EMORY001.9RO

Sampler's Name:

12/08/2009 10:08 Geoff Klein

County: Sample Matrix: ROANE - 73

EFO:

Water Knoxville

Sampling Agency: **Billing Code:** Send Report To:

TDEC-WPC 327.34-20 **TDEC-WPC** TDEC-WPC

Agency Invoiced: **Priority Date:**

12/18/2009

Date/Time Received:

12/08/2009 12:51

Received By:

Ken Hitchman

pH:	7.71	pH Units
Chlorine, residua	ıl:	
Conductivity:	44	uMHO
Temperature:	6 97	

Dissolved Oxygen: 15.89 Other: Flow:

Field Determinations

CFS

mg/L

TEST: Digestion Metals	METHOD: EPA 200.2					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	12/09/2009				M Pattanayek	12/9/2009

TEST: ICP	METHOD: EPA 200.7					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Iron	520	μg/L	2.9	10	A Wilson	12/10/2009

TEST: ICP-MS	ME	THOD: EPA 20	0.8			····
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Aluminum	470	μg/L	6.4	10	M Pattanayek	12/9/2009
Antimony	U	μg/L	0.33	1	M Pattanayek	12/9/2009
Arsenic	3.6J	μg/L	0.93	5	M Pattanayek	12/9/2009
Barium	38	μg/L	2.5	5	M Pattanayek	12/9/2009
Beryllium	0.14J	μg/L	0.11	1	M Pattanayek	12/9/2009
Cadmium	U	μg/L	0.41	1	M Pattanayek	12/9/2009
Chromium	U	μg/L	2.0	5	M Pattanayek	12/9/2009
Cobalt	0.54J	μg/L	0.04	1	M Pattanayek	12/9/2009
Copper	1.0	μg/L	0.38	1	M Pattanayek	12/9/2009
Lead	0.87J	μg/L	0.10	1	M Pattanayek	12/9/2009
Manganese	. 43	μg/L	0.42	1	M Pattanayek	12/9/2009
Nickel	1.4	μg/L	0.25	· 1	M Pattanayek	12/9/2009
Selenium	U	μg/Ľ	1.3	5	M Pattanayek	12/9/2009
Silver	U	μg/L	0.03	0.25	M Pattanayek	12/9/2009
Thallium	0.09J	μg/L	0.03	1	M Pattanayek	12/9/2009
Vanadium	3.8J	μg/L	3.4	5	M Pattanayek	12/9/2009
Zinc	2.8J	μg/L	1.9	5	M Pattanayek	12/9/2009

K00003194003

Project Name:

TVA-Ash Spill

Sample Description:

Emory River mile 1.9 at underwater weir

Project Site No.:

Sampler Project Name: TVA ash spill

Project Site

2B

Station No.:

EMORY001.9RO

Date/Time Collected: Sampler's Name:

12/08/2009 10:08

County:

Geoff Klein ROANE - 73

Sample Matrix: EFO:

Water

Sampling Agency:

Knoxville TDEC-WPC

Billing Code: Send Report To: Agency Invoiced: 327.34-20 TDEC-WPC TDEC-WPC

Priority Date:

12/18/2009

Date/Time Received:

12/08/2009 12:51

Received By:

Ken Hitchman

TEST: Mercury METHOD: EPA 245.1						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	μg/L	0.029	0.2	M Pattanayek	12/15/2009

Field Determinations

Dissolved Oxygen: 15.89

Chlorine, residual:

Conductivity:

Temperature:

7.71

44

6.97

pH Units

uMHO

mg/L

CFS

pH:

Other:

Flow:

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

K00003194004

Project Name:

TVA-Ash Spill

Sample Description:

Emory River mile 1.9 at underwater weir

Project Site No.:

Sampler Project Name: TVA ash spill

2B dup

Station No.: **Date/Time Collected:** EMORY001.9RO 12/08/2009 10:08

Sampler's Name:

Geoff Klein

County: Sample Matrix: **ROANE - 73**

EFO:

Water Knoxville

Sampling Agency: **Billing Code:** Send Report To:

TDEC-WPC 327.34-20 TDEC-WPC

Agency Invoiced: **Priority Date:**

TDEC-WPC 12/18/2009

Date/Time Received:

12/08/2009 12:51

Received By:

Ken Hitchman

Field Determinations

pH:

7.71

pH Units

Chlorine, residual:

Conductivity:

44

uMHO

Temperature: **Dissolved Oxygen: 15.89**

6.97

mg/L

Other: Flow:

CFS

TEST: Digestion Metals	T: Digestion Metals METHOD: EPA 200.2					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	12/09/2009			,	M Pattanayek	12/9/2009

TEST: ICP	METHOD: EPA 200.7						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Iron	520	μg/L	2.9	10	A Wilson	12/10/2009	

TEST: ICP-MS	MET	THOD: EPA 20	0.8			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Aluminum	460	μg/L	6.4	10	M Pattanayek	12/9/2009
Antimony	Ū	μg/L	0.33	1	M Pattanayek	12/9/2009
Arsenic	3.9J	μg/L	0.93	5	M Pattanayek	12/9/2009
Barium	38	µg/L₋	2.5	5	M Pattanayek	12/9/2009
Beryllium	0.13J	μg/L	0.11	1	M Pattanayek	12/9/2009
Cadmium	U	μg/L	0.41	1	M Pattanayek	12/9/2009
Chromium	U	μg/L	2.0	5	M Pattanayek	12/9/2009
Cobalt	0.56J	μg/L	0.04	1	M Pattanayek	12/9/2009
Copper	1.0	μg/L	0.38	1	M Pattanayek	12/9/2009
Lead	0.89J	μg/L	0.10	1	M Pattanayek	12/9/2009
Manganese	47	μg/L	0.42	1	M Pattanayek	12/9/2009
Nickel	1.4	μg/L	0.25	1	M Pattanayek	12/9/2009
Selenium	U	μg/L	1.3	5	M Pattanayek	12/9/2009
Silver	U	μg/L	0.03	0.25	M Pattanayek	12/9/2009
Thallium	0.070J	μg/L	0.03	1	M Pattanayek	12/9/2009
Vanadium	3.6J	μg/L	3.4	5	M Pattanayek	12/9/2009
Zinc	3.8J	μg/L	1.9	5	M Pattanayek	12/9/2009

K00003194004

Project Name:

TVA-Ash Spill

Sample Description:

Emory River mile 1.9 at underwater weir

Sampler Project Name: TVA ash spill

Project Site No.:

2B dup

Station No.:

EMORY001.9RO

Date/Time Collected: Sampler's Name:

12/08/2009 10:08

County:

Geoff Klein ROANE - 73

Sample Matrix:

EFO:

Water

Sampling Agency:

Knoxville

Billing Code: Send Report To: TDEC-WPC 327.34-20

Agency Invoiced:

TDEC-WPC TDEC-WPC

Priority Date: Date/Time Received: 12/18/2009 12/08/2009 12:51

Received By:

TEST: Mercury

Ken Hitchman

MET	THOD:	FPA	245

Field Determinations

Dissolved Oxygen: 15.89

Chlorine, residual:

Conductivity:

Temperature:

7.71

44

6.97

pH Units

uMHO

mg/L

CFS

pH:

Other:

Flow:

ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	μg/L	0.029	0.2	M Pattanayek	12/15/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

K00003194005

Project Name:

TVA-Ash Spill

Sample Description:

Emory River mile 1.9 at underwater weir

Project Site No.:

Sampler Project Name: TVA ash spill

Station No.:

2B blank

Date/Time Collected:

EMORY001.9RO

Sampler's Name:

12/08/2009 10:08 Geoff Klein

County: Sample Matrix: ROANE - 73

EFO:

Water

Sampling Agency: **Billing Code:**

Knoxville TDEC-WPC 327.34-20

Send Report To: Agency Invoiced: TDEC-WPC TDEC-WPC 12/18/2009

Priority Date: Date/Time Received:

12/08/2009 12:51

Received By:

Ken Hitchman

Field Determinations

pH:

Chlorine, residual: Conductivity: Temperature: **Dissolved Oxygen:**

Other:

Flow:

CFS

TEST: Digestion Metals	ME	METHOD: EPA 200.2					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Digestion Metals	12/09/2009		,		M Pattanayek	12/9/2009	

TEST: ICP	METHOD: EPA 200.7						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Iron	U	μg/L	2.9	10	A Wilson	12/10/2009	

TEST: ICP-MS	ME?	THOD: EPA 200	0.8			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Aluminum	U	μg/L	6.4	10	M Pattanayek	12/9/2009
Antimony	U	μg/L	0.33	1	M Pattanayek	12/9/2009
Arsenic	U	μg/L	0.93	5	M Pattanayek	12/9/2009
Barium	U	μg/L	2.5	5	M Pattanayek	12/9/2009
Beryllium	U	μg/L	0.11	1	M Pattanayek	12/9/2009
Cadmium	U	μg/L	0.41	1	M Pattanayek	12/9/2009
Chromium	U	μg/L	2.0	5	M Pattanayek	12/9/2009
Cobalt	U	μg/L	0.04	1	M Pattanayek	12/9/2009
Copper	U	μg/L	0.38	1	M Pattanayek	12/9/2009
Lead	U	μg/L	0.10	1	M Pattanayek	12/9/2009
Manganese	U	μg/L	0.42	1	M Pattanayek	12/9/2009
Nickel	U	μg/L	0.25	1	M Pattanayek	12/9/2009
Selenium	U	μg/L	1.3	5	M Pattanayek	12/9/2009
Silver	U	μg/L	0.03	0.25	M Pattanayek	12/9/2009
Thallium	U	μg/L	0.03	1	M Pattanayek	12/9/2009
Vanadium	U	μg/L	3.4	5	M Pattanayek	12/9/2009
Zinc	U	μg/L	1.9	5	M Pattanayek	12/9/2009

Project Name:

K00003194005

TVA-Ash Spill

Sample Description:

Emory River mile 1.9 at underwater weir

Project Site No.:

Sampler Project Name: TVA ash spill 2B blank

Station No.:

Date/Time Collected:

EMORY001.9RO 12/08/2009 10:08

Sampler's Name:

Geoff Klein

County: Sample Matrix: **ROANE - 73**

EFO:

Water

Sampling Agency: **Billing Code:**

Knoxville TDEC-WPC 327.34-20

Send Report To: Agency Invoiced:

TDEC-WPC TDEC-WPC

Priority Date: Date/Time Received:

12/18/2009 12/08/2009 12:51

Received By:

Ken Hitchman

Field Determinations

Chlorine, residual:

Dissolved Oxygen:

CFS

Conductivity:

Temperature:

pH:

Other:

Flow:

ME	THOD: EPA 24	5.1				
RESULT	UNITS	MDL	MQL	ANALYZED BY: DATE		
U	μg/L	0.029	0.2	M Pattanayek	12/15/2009	
		RESULT UNITS		RESULT UNITS MDL MQL	RESULT UNITS MDL MQL ANALYZED BY:	

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

Lab-Sample Number: Project Name:

K00003194006 TVA-Ash Spill

Sample Description:

Emory River mile 1.7

Sampler Project Name: TVA ash spill

Project Site No.:

3

Station No.:

EMORY001.7RO

Date/Time Collected: Sampler's Name:

12/08/2009 10:25 Geoff Klein

County: Sample Matrix: **ROANE - 73** Water

EFO: Sampling Agency: **Billing Code:**

Knoxville TDEC-WPC 327.34-20

Send Report To: Agency Invoiced: **Priority Date:**

TDEC-WPC TDEC-WPC 12/18/2009

Date/Time Received:

12/08/2009 12:51

Received By:

Ken Hitchman

Field Determinations 7.51

pH:

Chlorine, residual:

44

pH Units

Conductivity: Temperature:

7.05

uMHO

Dissolved Oxygen: 15.78 Other:

mg/L

Flow:

CFS

TEST: Digestion Metals	METHOD: EPA 200.2					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	12/09/2009				M Pattanayek	12/9/2009

TEST: ICP	WE.	0.7				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Iron	430	μg/L	2.9	10	A Wilson	12/10/2009

TEST: ICP-MS	ME.	ΓHOD: EPA 20	0.8			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Aluminum	330	μg/L	6.4	10	M Pattanayek	12/9/2009
Antimony	U	μg/L	0.33	1	M Pattanayek	12/9/2009
Arsenic	2.1J	μg/L	0.93	5	M Pattanayek	12/9/2009
Barium	32	μg/L	2.5	5	M Pattanayek	12/9/2009
Beryllium	U	μg/L	0.11	1	M Pattanayek	12/9/2009
Cadmium	U	μg/L	0.41	1	M Pattanayek	12/9/2009
Chromium	U	μg/L	2.0	5	M Pattanayek	12/9/2009
Cobalt	0.40J	μg/L	0.04	1	M Pattanayek	12/9/2009
Copper	0.47J	μg/L	0.38	1	M Pattanayek	12/9/2009
Lead	0.60J	μg/L	0.10	1	M Pattanayek	12/9/2009
Manganese	48	μg/L	0.42	1	M Pattanayek	12/9/2009
Nickel	1.2	μg/L	0.25	1	M Pattanayek	12/9/2009
Selenium	U	μg/L	1.3	5	M Pattanayek	12/9/2009
Silver	U	μg/L	0.03	0.25	M Pattanayek	12/9/2009
Thallium	0.050J	μg/L	0.03	1	M Pattanayek	12/9/2009
Vanadium	U	μg/L	3.4	5	M Pattanayek	12/9/2009
Zinc	2.5J	μg/L	1.9	5	M Pattanayek	12/9/2009

K00003194006 **Project Name:**

Sample Description:

TVA-Ash Spill Emory River mile 1.7

Sampler Project Name: TVA ash spill

Project Site No.:

3

Station No.:

EMORY001.7RO

Date/Time Collected: Sampler's Name:

12/08/2009 10:25 Geoff Klein

County: Sample Matrix: **ROANE - 73**

EFO:

Water Knoxville

Sampling Agency: **Billing Code: Send Report To:**

TDEC-WPC 327.34-20 **TDEC-WPC** TDEC-WPC

Agency Invoiced: **Priority Date:**

12/18/2009

Date/Time Received:

12/08/2009 12:51

Received By:

Ken Hitchman

TEST: Mercury	WE					
ANALYTE	RESULT UNITS MDL		MDL	MQL	ANALYZED BY:	DATE
Mercury	U	μg/L	0.029	0.2	M Pattanayek	12/15/2009

Field Determinations

Dissolved Oxygen: 15.78

Chlorine, residual:

Conductivity:

Temperature:

7.51

44

7.05

pH Units

uMHO

mg/L

CFS

:Hq

Other:

Flow:

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

Lab-Sample Number: K00003194007
Project Name: TVA-Ash Spill

Project Name: TVA-Ash Spill
Sample Description: Emory River mile 0.1

Sampler Project Name: TVA ash spill

Project Site No.:

Station No.: EMORY000.1RO Date/Time Collected: 12/08/2009 10:39

Sampler's Name: County: Geoff Klein ROANE - 73

Sample Matrix: EFO:

ROANE - 73 Water

Sampling Agency: Billing Code: Knoxville TDEC-WPC 327.34-20 TDEC-WPC TDEC-WPC

Agency Invoiced: Priority Date:

Send Report To:

12/18/2009

Date/Time Received:

12/08/2009 12:51

Received By:

Ken Hitchman

TEST: Digestion Metals	MET	THOD: EPA 20	0.2			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	12/09/2009		-		M Pattanavek	12/9/2009

Field Determinations

Dissolved Oxygen: 15.90

Chlorine, residual:

Conductivity:

Temperature:

7.46

44

7.18

pH Units

uMHO

mg/L

CFS

pH:

Other:

Flow:

TEST: ICP	ME	ΓHOD: EPA 20	0.7			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Iron	380	μg/L	2.9	10	A Wilson	12/10/2009

TEST: ICP-MS	ME ⁻	THOD: EPA 20	0.8			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Aluminum	230	μg/L	6.4	10	M Pattanayek	12/9/2009
Antimony	U	μg/L	0.33	1	M Pattanayek	12/9/2009
Arsenic	1.3J	μg/L	0.93	5	M Pattanayek	12/9/2009
Barium	29	μg/L	2.5	5	M Pattanayek	12/9/2009
Beryllium	U	μg/L	0.11	1	M Pattanayek	12/9/2009
Cadmium	U	μg/L	0.41	1	M Pattanayek	12/9/2009
Chromium	U	μg/L	2.0	5	M Pattanayek	12/9/2009
Cobalt	0.36J	μg/L	0.04	1	M Pattanayek	12/9/2009
Copper	U	μg/L	0.38	1	M Pattanayek	12/9/2009
Lead	0.45J	μg/L	0.10	1	M Pattanayek	12/9/2009
Manganese	60	μg/L	0.42	1	M Pattanayek	12/9/2009
Nickel	1.1	μg/L	0.25	1	M Pattanayek	12/9/2009
Selenium	U	μg/L	1.3	5	M Pattanayek	12/9/2009
Silver	U	μg/L	0.03	0.25	M Pattanayek	12/9/2009
Thallium	0.030J	μg/L	0.03	1	M Pattanayek	12/9/2009
Vanadium	U	μg/L	3.4	5	M Pattanayek	12/9/2009
Zinc	2.2 J	μg/L	1.9	5	M Pattanayek	12/9/2009

K00003194007

Project Name:

TVA-Ash Spill

Sample Description:

Sampler Project Name: TVA ash spill

Emory River mile 0.1

Project Site No.:

Station No.:

EMORY000.1RO

Date/Time Collected:

12/08/2009 10:39

Sampler's Name:

Geoff Klein

County: Sample Matrix: **ROANE - 73**

EFO:

Water

Sampling Agency:

Knoxville

Billing Code: Send Report To: TDEC-WPC 327.34-20 TDEC-WPC

Agency Invoiced: Priority Date:

TDEC-WPC 12/18/2009

Date/Time Received:

12/08/2009 12:51

Received By:

TEST: Mercury

Ken Hitchman

ANALYTE RESULT UNITS MDL MQL **ANALYZED BY:** DATE U μg/L 0.029 0.2 M Pattanayek 12/15/2009 Mercury

METHOD: EPA 245.1

Field Determinations

Dissolved Oxygen: 15.90

Chlorine, residual:

Conductivity:

Temperature:

7.46

44

7.18

pH Units

uMHO

mg/L

CFS

:Hq

Other:

Flow:

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

K00003194008

Project Name:

TVA-Ash Spill

Sample Description:

Clinch River mile 2.3

Sampler Project Name: TVA ash spill

Project Site No.:

Station No.: Date/Time Collected: CLINC002.3RO

Sampler's Name:

12/08/2009 11:04 Geoff Klein

County: Sample Matrix: **ROANE - 73**

EFO:

Water

Sampling Agency: **Billing Code:**

Knoxville **TDEC-WPC** 327.34-20

Send Report To: Agency Invoiced: Priority Date:

TDEC-WPC **TDEC-WPC** 12/18/2009

Date/Time Received:

12/08/2009 12:51

Received By:

Ken Hitchman

Field Determinations :Hq 7.84

Chlorine, residual:

Conductivity:

193

uMHO

CFS

pH Units

Temperature:

9.89

Dissolved Oxygen: 17.03 mg/L

Other:

Flow:

TEST: Digestion Metals	METHOD: EPA 200.2					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	12/09/2009				M Pattanayek	12/9/2009

TEST: ICP METHOD: EPA 200.7						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Iron	140	μg/L	2.9	10	A Wilson	12/10/2009

TEST: ICP-MS	ME.	METHOD: EPA 200.8				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Aluminum	86	μg/L	6.4	10	M Pattanayek	12/9/2009
Antimony	U	μg/L	0.33	1	M Pattanayek	12/9/2009
Arsenic	U	μg/L	0.93	5	M Pattanayek	12/9/2009
Barium	32	μg/L	2.5	5	M Pattanayek	12/9/2009
Beryllium	U	μg/L	0.11	1	M Pattanayek	12/9/2009
Cadmium	U	μg/L	0.41	1	M Pattanayek	12/9/2009
Chromium	U	μg/L	2.0	5	M Pattanayek	12/9/2009
Cobalt	0.17J	μg/L	0.04	1	M Pattanayek	12/9/2009
Copper	U	μg/L	0.38	1	M Pattanayek	12/9/2009
Lead	0.17J	μg/L	0.10	1	M Pattanayek	12/9/2009
Manganese	29	μg/L	0.42	1	M Pattanayek	12/9/2009
Nickel	1.1	μg/L	0.25	1	M Pattanayek	12/9/2009
Selenium	U	μg/L	1.3	5	M Pattanayek	12/9/2009
Silver	U	μg/L	0.03	0.25	M Pattanayek	12/9/2009
Thallium	U	μg/L	0.03	1	M Pattanayek	12/9/2009
Vanadium	U	μg/L	3.4	5	M Pattanayek	12/9/2009
Zinc	3.0J	μg/L	1.9	5	M Pattanayek	12/9/2009

K00003194008

Project Name:

TVA-Ash Spill

Sample Description:

Clinch River mile 2.3

Sampler Project Name: TVA ash spill **Project Site No.:**

Station No.:

CLINC002.3RO

Date/Time Collected:

12/08/2009 11:04

Sampler's Name: County:

Geoff Klein **ROANE - 73**

Sample Matrix:

EFO:

Water Knoxville

Sampling Agency: Billing Code:

TDEC-WPC 327.34-20

Send Report To: Agency Invoiced:

TDEC-WPC TDEC-WPC

Priority Date: Date/Time Received: 12/18/2009 12/08/2009 12:51

Received By:

TEST: Mercury

Ken Hitchman

METHOD: EPA 245.1

Field Determinations

Dissolved Oxygen: 17.03

Chlorine, residual:

Conductivity:

Temperature:

7.84

193

9.89

pH Units

uMHO

mg/L

CFS

:Ha

Other:

Flow:

ANALYTE **RESULT** UNITS MDL MQL **ANALYZED BY:** DATE U μg/L 0.029 0.2 M Pattanayek 12/15/2009 Mercury

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

K00003194009

Project Name:

TVA-Ash Spill

Sample Description:

Clinch River TVA Discharge Point

Sampler Project Name: TVA ash spill **Project Site No.:**

5A

Station No.: Date/Time Collected: KingAshOutF2 12/08/2009 11:15

Sampler's Name: County:

Geoff Klein **ROANE - 73**

Sample Matrix:

Water

EFO: Sampling Agency:

Knoxville **TDEC-WPC** 327.34-20

Send Report To: **Agency Invoiced: Priority Date:**

Billing Code:

TDEC-WPC TDEC-WPC 12/18/2009

Date/Time Received:

12/08/2009 12:51

Received By:

Ken Hitchman

Field Determinations pH: 7.54

Chlorine, residual:

Conductivity:

uMHO

58 Temperature: 7.19

Dissolved Oxygen: 16.55

Other: Flow:

CFS

mg/L

pH Units

TEST: Digestion Metals	Digestion Metals METHOD: EPA 200.2					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	12/09/2009				M Pattanayek	12/9/2009

TEST: ICP METHOD: EPA 200.7						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Iron	350	μg/L	2.9	10	A Wilson	12/10/2009

TEST: ICP-MS	ME					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Aluminum	330	μg/L	6.4	10	M Pattanayek	12/9/2009
Antimony	0.50J	μg/L	0.33	1	M Pattanayek	12/9/2009
Arsenic	3.5J	μg/L	0.93	5	M Pattanayek	12/9/2009
Barium	35	μg/L	2.5	5	M Pattanayek	12/9/2009
Beryllium	U	μg/L	0.11	1	M Pattanayek	12/9/2009
Cadmium	U	μg/ L	0.41	1	M Pattanayek	12/9/2009
Chromium	U	μg/L	2.0	5	M Pattanayek	12/9/2009
Cobalt	0.34J	μg/L	0.04	1	M Pattanayek	12/9/2009
Copper	1.4	μg/L	0.38	1	M Pattanayek	12/9/2009
Lead	0.39J	μg/L	0.10	1	M Pattanayek	12/9/2009
Manganese	68	μg/L	0.42	1	M Pattanayek	12/9/2009
Nickel	1.1	μg/L	0.25	1	M Pattanayek	12/9/2009
Selenium	U	μg/L	1.3	5	M Pattanayek	12/9/2009
Silver	U	μg/L	0.03	0.25	M Pattanayek	12/9/2009
Thallium	0.060J	μg/L	0.03	1	M Pattanayek	12/9/2009
Vanadium	U	μg/L	3.4	5	M Pattanayek	12/9/2009
Zinc	2.5J	μg/L	1.9	5	M Pattanayek	12/9/2009

er: K00003194009

Project Name:

TVA-Ash Spill

Sample Description:

Clinch River TVA Discharge Point

Droiget Cite No.

Sampler Project Name: TVA ash spill

Project Site No.:

5A

Station No.:

KingAshOutF2

Date/Time Collected: Sampler's Name:

12/08/2009 11:15

Sampler's r

Geoff Klein

Sample Matrix:

ROANE - 73

EFO:

Water

Sampling Agency: Billing Code:

Knoxville TDEC-WPC 327.34-20

Send Report To: Agency Invoiced: Priority Date: TDEC-WPC TDEC-WPC 12/18/2009

Date/Time Received:

12/08/2009 12:51

Received By:

Ken Hitchman

TEST: Mercury	MET	THOD: EPA 24	5.1			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	μg/L	0.029	0.2	M Pattanayek	12/15/2009

Field Determinations

Dissolved Oxygen: 16.55

Chlorine, residual:

Conductivity:

Temperature:

7.54

58

7.19

pH Units

uMHO

mg/L

CFS

:Ha

Other:

Flow:

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

K00003194010

Project Name:

TVA-Ash Spill

Sample Description:

Clinch River mile 4.5 near Sugar Grove Valley R Chlorine, residual:

Sampler Project Name: TVA ash spill

Project Site No.:

Station No.:

CLINC004.5RO

Date/Time Collected:

12/08/2009 10:49

Sampler's Name:

Geoff Klein

County: **Sample Matrix:** **ROANE - 73**

Water

EFO:

Sampling Agency: **Billing Code:**

Knoxville **TDEC-WPC**

Send Report To: Agency Invoiced: 327.34-20 TDEC-WPC TDEC-WPC 12/18/2009

Date/Time Received:

TEST: Digestion Metals

12/08/2009 12:51

Received By:

Priority Date:

Ken Hitchman

METHOD: EPA 200.2

ANALYTE

RESULT

UNITS

MDL

MQL ANALYZED BY:

Field Determinations

Dissolved Oxygen: 16.94

Conductivity:

Temperature:

pH:

Other:

Flow:

DATE

Digestion Metals

12/09/2009

M Pattanayek

7.95

230

10.75

12/9/2009

pH Units

uMHO

mg/L

CFS

TEST: ICP

METHOD: EPA 200.7

UNITS

μg/L

ANALYTE Iron

RESULT 55

MDL 2.9

ANALYZED BY: MQL 10 A Wilson

DATE 12/10/2009

TEST: ICP-MS

METHOD: EPA 200.8

ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Aluminum	34	μg/L	6.4	10	M Pattanayek	12/9/2009	
Antimony	U	μg/L	0.33	1 .	M Pattanayek	12/9/2009	
Arsenic	U	μg/L	0.93	5	M Pattanayek	12/9/2009	
Barium	32	μg/L	2.5	5	M Pattanayek	12/9/2009	
Beryllium	U	μg/L	0.11	1	M Pattanayek	12/9/2009	
Cadmium	U .	μg/L	0.41	1	M Pattanayek	12/9/2009	
Chromium	U	μg/L	2.0	5	M Pattanayek	12/9/2009	
Cobalt	0.13J	μg/L	0.04	1	M Pattanayek	12/9/2009	
Copper	U	μg/L	0.38	1	M Pattanayek	12/9/2009	
Lead	U	μg/L	0.10	1	M Pattanayek	12/9/2009	
Manganese	20	μg/L	0.42	1	M Pattanayek	12/9/2009	
Nickel	1.1	μg/L	0.25	1	M Pattanayek	12/9/2009	
Selenium	U	μg/L	1.3	5	M Pattanayek	12/9/2009	
Silver	U .	μg/L	0.03	0.25	M Pattanayek	12/9/2009	
Thallium	U	μg/L	0.03	1	M Pattanayek	12/9/2009	
Vanadium	U	μg/L	3.4	5	M Pattanayek	12/9/2009	
Zinc	U	μg/L	1.9	5	M Pattanayek	12/9/2009	

K00003194010

Project Name:

TVA-Ash Spill

Sample Description:

Clinch River mile 4.5 near Sugar Grove Valley R Chlorine, residual:

Field Determinations

Dissolved Oxygen: 16.94

Conductivity:

Temperature:

pH:

Other:

Flow:

MDI

MOI

7.95

230

10.75

ANALYZED DV.

pH Units

uMHO

mg/L

CFS

DATE

Sampler Project Name: TVA ash spill **Project Site No.:**

Station No.:

CLINC004.5RO

Date/Time Collected:

12/08/2009 10:49

Sampler's Name: County:

Geoff Klein

Sample Matrix:

ROANE - 73

Water

EFO: Sampling Agency: Knoxville **TDEC-WPC**

Billing Code: Send Report To:

327.34-20 **TDEC-WPC**

Agency Invoiced: Priority Date:

TDEC-WPC 12/18/2009

Date/Time Received:

12/08/2009 12:51

Received By:

A N: A I VTC

Ken Hitchman

	TEST: Mercury	METHOD: EPA 245.1
--	---------------	-------------------

DEALU T

ANALYTE	RESULI	UNITS	MDL	IVIGE	ANALIZED BI:	DATE	
Mercury	U	μg/L	0.029	0.2	M Pattanayek	12/15/2009	

LINUTO

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit



STATE OF TENNESSEE **DEPARTMENT OF HEALTH ENVIRONMENTAL LABORATORIES**

TDH: Lab Services JRL Lab Services - Jackson Regional Lab Jackson, TN 38301 731-426-0686

TDH: Lab Services KRL Lab Services - Knoxville Regional Lab Knoxville, TN 37920 865-549-5201

TDH: Lab Services NCL Lab Services - Nashville Central Lab Nashville, TN 37243 615-262-6300

Sent To:

Greg Denton

TDEC-WPC

6th Floor, L & C Tower Annex

401 Church Street

Nashville, TN 37243-1534

Michael Atchley TDEC-WPC

Knoxville FO

3711 Middlebrook Pike

Knoxville, TN 37921

Lab ID: K00003194

Knoxville Regional Laboratory

Sampling Agency: TDEC: Division of Water Pollution Control

Billing Code:

327.34-20

This is to certify that the following results were determined using good laboratory pratices and in accordance with federal or state approved methodologies.

K00003194001

Project Name:

TVA-Ash Spill

Sample Description:

Emory River mile 12.1

Sampler Project Name: TVA ash spill

Project Site No.: Station No.:

EMORY012.1RO

Date/Time Collected:

12/08/2009 11:36

Sampler's Name: County:

Geoff Klein ROANE - 73

Sample Matrix: EFO:

Water

Sampling Agency:

Knoxville

Billing Code:

TDEC-WPC

Send Report To: Agency invoiced: 327.34-20 **TDEC-WPC** TDEC-WPC

Priority Date:

12/18/2009

Date/Time Received:

12/08/2009 12:51

Received By:

Ken Hitchman

Field Determinations

pH:

7.60

pH Units

Chlorine, residual:

Conductivity:

38

uMHO

Temperature:

6.13 **Dissolved Oxygen: 15.10**

mg/L

Other:

Flow:

CFS

TEST: Alkalinity, Total	ME.	THOD: EPA 31	0.2			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	13	mg/L	3.8	10	M Chen	12/15/2009

TEST: Hardness, Calcium	ME	THOD: SM 350	0-Ca D			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	15	mg/L	0.7	1	M Chen	12/14/2009

TEST: Residue, Settleable	ME.	THOD: SM 254	0F			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Settleable Residue	U	ml/L	0.10	0.10	S Burchfield	12/9/2009

TEST: Residue, Suspended	ME.	ΓHOD: SM 254	0D			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Suspended Solids	U	mg/L	10	10	A Peeples	12/11/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

K00003194002

Project Name:

TVA-Ash Spill

Sample Description:

Emory River mile 2.1

Sampler Project Name: TVA ash spill

TIME

Project Site No.:

2

Station No.:

EMORY002.1RO

Date/Time Collected:

12/08/2009 09:58

Sampler's Name:

Geoff Klein

County: Sample Matrix:

ROANE - 73

Sample r

Water

Sampling Agency:

Knoxville

Billing Code:

TDEC-WPC 327.34-20

Send Report To: Agency Invoiced: TDEC-WPC

Priority Date:

12/18/2009

Date/Time Received:

12/08/2009 12:51

Received By:

Ken Hitchman

Field Determinations

pH:

7.92

pH Units

Chlorine, residual:

Conductivity:

44

uMHO

Temperature: 6.89

Dissolved Oxygen: 16.18

mg/L

Other:

Flow:

CFS

TEST: Alkalinity, Total	ME	THOD: EPA 31	0.2			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	17	mg/L	3.8	10	M Chen	12/15/2009

TEST: Hardness, Calcium	METHOD: SM 3500-Ca D					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	15	mg/L	0.7	1	M Chen	12/14/2009

TEST: Residue, Settleable	ME.	THOD: SM 254	0F			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Settleable Residue	U	ml/L	0.10	0.10	S Burchfield	12/9/2009

TEST: Residue, Suspended	ME	ГНОD: SM 254	0D			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Suspended Solids	` 10	mg/L	10	10	A Peeples	12/11/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

K00003194003

Project Name:

TVA-Ash Spill

Sample Description:

Emory River mile 1.9 at underwater weir

Sampler Project Name: TVA ash spill

Project Site No.:

2B

Station No.:

EMORY001.9RO

Date/Time Collected: Sampler's Name:

12/08/2009 10:08 Geoff Klein

County:

ROANE - 73

Sample Matrix:

EFO:

Water

Sampling Agency:

Knoxville

Billing Code:

TDEC-WPC

Send Report To:

327.34-20 TDEC-WPC TDEC-WPC

Agency Invoiced: **Priority Date:**

12/18/2009

Date/Time Received:

12/08/2009 12:51

Received By:

Ken Hitchman

Field Determinations

pH:

7.71

pH Units

Chlorine, residual:

Conductivity:

44

uMHO

Temperature: 6.97

Dissolved Oxygen: 15.89

mg/L

Other:

Flow:

CFS

TEST: Alkalinity, Total	METHOD: EPA 310.2					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	17	mg/L	3.8	10	M Chen	12/15/2009

TEST: Hardness, Calcium	METHOD: SM 3500-Ca D					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	17	mg/L	0.7	1	M Chen	12/14/2009

TEST: Residue, Settleable	ME					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Settleable Residue	U	ml/L	0.10	0.10	S Burchfield	12/9/2009

TEST: Residue, Suspended	METHOD: SM 2540D					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Suspended Solids	39	mg/L	10	10	A Peeples	12/11/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

K00003194004

Project Name:

TVA-Ash Spill

Sample Description:

Emory River mile 1.9 at underwater weir

Sampler Project Name: TVA ash spill **Project Site No.:**

2B dup

Station No.:

EMORY001.9RO

Date/Time Collected:

12/08/2009 10:08

Sampler's Name:

Geoff Klein

County: Sample Matrix: ROANE - 73

EFO:

Water

Sampling Agency:

Knoxville

Billing Code:

TDEC-WPC 327.34-20 TDEC-WPC

Send Report To: Agency Invoiced: **Priority Date:**

TDEC-WPC 12/18/2009

Date/Time Received:

12/08/2009 12:51

Received By:

Ken Hitchman

Field Determinations

pH:

7.71

pH Units

Chlorine, residual:

Conductivity:

44

uMHO

Temperature:

6.97

Dissolved Oxygen: 15.89

mg/L

Other:

Flow:

CFS

TEST: Alkalinity, Total	ME	THOD: EPA 31				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	18	mg/L	3.8	10	M Chen	12/15/2009

TEST: Hardness, Calcium	METHOD: SM 3500-Ca D					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY: DATI	E
Calcium hardness	16	mg/L	0.7	1	M Chen 12/14/2	:009

TEST: Residue, Settleable	METHOD: SM 2540F					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Settleable Residue	U	ml/L	0.10	0.10	S Burchfield	12/9/2009

TEST: Residue, Suspended	METHOD: SM 2540D					,
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Suspended Solids	37	mg/L	10	10	A Peeples	12/11/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

K00003194005

Project Name:

TVA-Ash Spill

Sample Description:

Emory River mile 1.9 at underwater weir

Project Site No.:

Sampler Project Name: TVA ash spill 2B blank

Station No.:

Date/Time Collected:

EMORY001.9RO 12/08/2009 10:08

Sampler's Name:

Geoff Klein

County:

ROANE - 73

Sample Matrix:

EFO:

Water

Sampling Agency:

Knoxville **TDEC-WPC**

Billing Code: Send Report To: 327.34-20 **TDEC-WPC TDEC-WPC**

Agency Invoiced: Priority Date:

12/18/2009

Date/Time Received:

12/08/2009 12:51

Received By:

Ken Hitchman

Field Determinations

pH:

Chlorine, residual:

Conductivity: Temperature:

Dissolved Oxygen:

Other:

Flow:

CFS

TEST: Alkalinity, Total METHOD: EPA 310.2						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	U	mg/L	3.8	10	M Chen	12/15/2009

TEST: Hardness, Calcium	METHOD: SM 3500-Ca D					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	U	mg/L	0.7	1	M Chen	12/14/2009

TEST: Residue, Suspended	METHOD: SM 2540D					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Suspended Solids	υ	mg/L	10	10	A Peeples	12/11/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

K00003194006

Project Name:

TVA-Ash Spill

Sample Description:

Emory River mile 1.7

Sampler Project Name: TVA ash spill

Project Site No.:

3

Station No.:

EMORY001.7RO

Date/Time Collected:

12/08/2009 10:25

Sampler's Name: County:

Geoff Klein **ROANE - 73**

Sample Matrix:

Water

EFO:

Knoxville

Sampling Agency: **Billing Code:**

TDEC-WPC 327.34-20 **TDEC-WPC**

Send Report To: Agency Invoiced:

TDEC-WPC 12/18/2009

Date/Time Received:

12/08/2009 12:51

Received By:

Priority Date:

Ken Hitchman

Field Determinations 7.51 pH:

Chlorine, residual:

Conductivity: 44

uMHO

Temperature: 7.05

Dissolved Oxygen: 15.78

mg/L

pH Units

Other:

CFS Flow:

TEST: Alkalinity, Total	METHOD: EPA 310.2					
ANALYTE	RESULT UNITS MDL		MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	17	mg/L	3.8	. 10	M Chen	12/15/2009

TEST: Hardness, Calcium	MET	THOD: SM 350				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	16	mg/L	0.7	1	M Chen	12/14/2009

TEST: Residue, Settleable	METHOD: SM 2540F					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Settleable Residue	U	ml/L	0.10	0.10	S Burchfield	12/9/2009

TEST: Residue, Suspended	METHOD: SM 2540D					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Suspended Solids	27	mg/L	10	10	A Peeples	12/11/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

K00003194007

Project Name:

TVA-Ash Spill

Sample Description:

Sampler Project Name: TVA ash spill

Emory River mile 0.1

Project Site No.:

Station No.:

EMORY000.1RO

Date/Time Collected:

12/08/2009 10:39

Sampler's Name:

Geoff Klein

County: Sample Matrix: **ROANE - 73**

Water

EFO:

Sampling Agency: **Billing Code:**

Knoxville . TDEC-WPC

Send Report To:

327.34-20

Agency Invoiced: **Priority Date:**

TDEC-WPC TDEC-WPC

Date/Time Received:

12/18/2009 12/08/2009 12:51

Received By:

Ken Hitchman

Field Determinations

pH:

7.46

pH Units

Chlorine, residual:

Conductivity:

44

uMHO

Temperature: 7.18 **Dissolved Oxygen: 15.90**

Other:

Flow:

mg/L **CFS**

TEST: Alkalinity, Total	METHOD: EPA 310.2					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	18	mg/L	3.8	10	M Chen	12/15/2009

TEST: Hardness, Calcium	METHOD: SM 3500-Ca D					•
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	17	mg/L	0.7	1	M Chen	12/14/2009

TEST: Residue, Settleable	ME	-				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Settleable Residue	U	ml/L	0.10	0.10	S Burchfield	12/9/2009

TEST: Residue, Suspended	METHOD: SM 2540D					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Suspended Solids	32	mg/L	10	10	A Peeples	12/11/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

K00003194008

Project Name:

TVA-Ash Spill

Sample Description:

Clinch River mile 2.3

Sampler Project Name: TVA ash spill

Project Site No.:

5

Station No.:

CLINC002.3RO

Date/Time Collected:

12/08/2009 11:04

Sampler's Name: County:

Geoff Klein **ROANE - 73**

Sample Matrix:

EFO:

Water Knoxville

Sampling Agency: **Billing Code:**

TDEC-WPC

Send Report To: Agency Invoiced: 327.34-20 TDEC-WPC **TDEC-WPC**

Priority Date:

12/18/2009

Date/Time Received:

12/08/2009 12:51

Received By:

Ken Hitchman

Field Determinations

pH:

7.84

pH Units

Chlorine, residual:

Conductivity:

193

uMHO

9.89 Temperature:

Dissolved Oxygen: 17.03

mg/L

Other:

Flow:

CFS

TEST: Alkalinity, Total	ME.					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	93	mg/L	3.8	10	M Chen	12/15/2009

TEST: Hardness, Calcium	Calcium METHOD: SM 3500-Ca D					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	77	mg/L	0.7	1	M Chen	12/14/2009

TEST: Residue, Settleable	METHOD: SM 2540F					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Settleable Residue	U	ml/L	0.10	0.10	S Burchfield	12/9/2009

TEST: Residue, Suspended	METHOD: SM 2540D					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Suspended Solids	U	mg/L	10	10	A Peeples	12/11/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

K00003194009

Project Name:

TVA-Ash Spill

Sample Description:

Clinch River TVA Discharge Point

Sampler Project Name: TVA ash spill

Project Site No.:

5A

Station No.:

KingAshOutF2

Date/Time Collected:

12/08/2009 11:15

Sampler's Name: County:

Geoff Klein

Sample Matrix:

ROANE - 73

EFO:

Water

Sampling Agency: **Billing Code:**

Knoxville TDEC-WPC 327.34-20

Send Report To: Agency Invoiced: **TDEC-WPC** TDEC-WPC

Priority Date: Date/Time Received: 12/18/2009 12/08/2009 12:51

Received By:

Ken Hitchman

Field Determinations

pH:

7.54

pH Units

Chlorine, residual:

Conductivity:

58

uMHO

Temperature: 7.19

Dissolved Oxygen: 16.55

Other:

Flow:

CFS

mg/L

TEST: Alkalinity, Total METHOD: EPA 310.2						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	21	mg/L	3.8	10	M Chen	12/15/2009

TEST: Hardness, Calcium	MET	THOD: SM 350	0-Ca D			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	24	mg/L	0.7	1	M Chen	12/14/2009

TEST: Residue, Settleable	ME ⁻	THOD: SM 254	0F			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Settleable Residue	U	ml/L	0.10	0.10	S Burchfield	12/9/2009

TEST: Residue, Suspended	ME.	METHOD: SM 2540D				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Suspended Solids	18	mg/L	10	10	A Peeples	12/11/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit **MQL - Method Quantitation Limit**

Sample Description:

K00003194010

Project Name:

TVA-Ash Spill

pH: Clinch River mile 4.5 near Sugar Grove Valley F Chlorine, residual:

Field Determinations

Dissolved Oxygen: 16.94

Conductivity:

Temperature:

Other:

Flow:

7.95

230

10.75

pH Units

uMHO

mg/L

CFS

Sampler Project Name: TVA ash spill

Project Site No.:

6

Station No.:

CLINC004.5RO

Date/Time Collected:

12/08/2009 10:49

Sampler's Name:

Geoff Klein

County:

ROANE - 73

Sample Matrix: EFO:

Water

Sampling Agency:

Knoxville

Billing Code:

TDEC-WPC

Send Report To: Agency Invoiced: 327.34-20 TDEC-WPC TDEC-WPC

Priority Date:

12/18/2009

Date/Time Received:

12/08/2009 12:51

Received By:

Ken Hitchman

TEST: Alkalinity, Total	ME ⁻	THOD: EPA 31	0.2			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	130	mg/L	3.8	10	M Chen	12/15/2009

TEST: Hardness, Calcium	ME ⁻	THOD: SM 350	0-Ca D			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	99	mg/L	0.7	1	M Chen	12/14/2009

TEST: Residue, Settleable	ME	THOD: SM 254	0F			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Settleable Residue	U	ml/L	0.10	0.10	S Burchfield	12/9/2009

TEST: Residue, Suspended	ME.	THOD: SM 254				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Suspended Solids	U	mg/L	10	10	A Peeples	12/11/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit